

NO DRAWINGS

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 AND INVENTION

## (54) A FLOORCOVERING

(71) We, VITAFOAM LIMITED, a British Company of Soudan Street, Middleton, Lancashire, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention concerns a floorcovering.

It is well known to provide floorcoverings made from textile materials such as woven, tufted or felted materials and such floorcoverings are normally used in conjunction with an underlay material which may itself be produced from foamed rubber or plastics alone, felt, foamed rubber or plastics incorporating a reinforcement of hessian or felt or from rubber or plastics material and bonded together using an adhesive material such as latex or resinous material and a reinforcement of hessian or felt.

Underlay material is used not only to increase the impression of resilience of the floorcoverings but also to increase the life of the woven, tufted or felted material and to assist in precluding draughts from under the floor, where the latter is not in solid form.

It follows that since two layers of floorcoverings are normally used the cost of covering the floor is relatively high.

It has also been proposed to produce a composite floorcovering consisting of a woven or tufted material which has an underlay of foamed material adhered thereto, but such floor coverings have not to any great extent replaced the more normal use of traditional woven, tufted, or felted coverings and separate underlay and one of the reasons for this is thought to lie in the fact that the wearability of woven, or tufted, foam back floorcoverings is considered to be somewhat less than the traditional materials, and additionally the cost saving is not, in many cases, thought to be sufficiently high.

It is the object of the present invention to

[Price 25p]

provide a floorcovering which is relatively inexpensive, has good wearing properties and is comparatively simple to produce.

According to the present invention there is provided a floorcovering comprising a layer of stitchbonded fabric incorporating a polymeric material impregnant and a layer of foamed material adhered thereto, the said polymeric material serving at least to increase the wearability of the fabric (as compared to a non-impregnated fabric) and to assist in producing a high bond strength between the foamed material and the stitchbonded fabric.

The invention will now be described further, by way of example only with reference to one practical form thereof.

To produce a floorcovering a carded batt of fibres (for example, wool) is produced and is subjected to a stitch bonding process which produces parallel longitudinal rows of stitches in the batt. The rows of stitches serve to hold the fibres of the batt together to form a fabric. The resultant fabric is then impregnated with a polymeric material further to bond the fibres together and also firmly to bond the stitches into the batt. The impregnant chosen is one which will have an affinity for a foamed material subsequently to be cojoined with the fabric whether this foamed material is produced from rubber latex or plastics material. We have found that materials such as polyvinyl acetate, rubber latex (natural or synthetic) or polymeric resins are extremely useful as impregnants and the correct choice of an impregnant from such materials will ensure affinity for the foamed material subsequently to be adhered to the stitchbonded fabric.

The impregnant, in addition to reinforcing the fabric by its bonding action on the fibres and the rows of stitches also increases the wear resistance of the fabric. The yarn used to form the stitches is preferably a synthetic yarn such as nylon which itself has high resistance to wear.

The impregnation of the fabric is achieved by means of, for example, padding the impregnant onto the face of the fabric in sufficient quantity to ensure that it becomes wetted out, total immersion in the impregnant, or by back coating, again ensuring complete penetration of the impregnant through the fabric.

The impregnant is conveniently carried in suspension in a liquid and the solid content of the suspension is controlled dependent upon the amount of solids required in the fabric. After impregnation the fabric is squeezed to remove excess liquor and is then dried in a hot air atmosphere.

Whilst it is possible to produce separate parallel rows of stitches in the fibrous batt it is thought to be preferable to interconnect the rows of stitches to produce an open mesh or net-like configuration of stitching in the fabric.

If it is desired to dye or otherwise finish the product the batt is dyed or finished before impregnation and the impregnated fabric is then passed through a foam spreading machine in which a layer of foamed material is placed onto one face of the fabric. Conveniently the foam layer is of approximately one quarter of an inch in thickness although it may be greater or less than this thickness. The foamed material is cured (as by vulcanisation in the case of a latex foam) and during the cure a bond is formed between the foamed material layer and the impregnant which supplements the bond formed between the fabric and the foamed material at the interface thereof. The foam layer may be formed from natural or synthetic latex or from a foamable plastics material.

The floorcovering so produced is found to be flexible and excessive stiffness can be avoided by controlling the amount of polymeric impregnant present. Any degree of stiffness can, of course, be produced dependent upon the amount of impregnant used. It is found that satisfactory results can be obtained using approximately 4% of polymer in the fabric but it is thought that an enhanced result would be obtained by using a greater percentage of polymer and tests have shown that as much as 12% of polymer can be used without undue stiffness resulting. As a result of tests on the floorcoverings it is appreciated that a greater amount of polymer than 12% could be used but economically it may not be desirable to exceed 12% by an appreciable amount.

A floorcovering sample produced in the manner above described has been subjected to

wear tests and it is found that, contrary to initial thoughts, the tendency of the threads to break is extremely remote, and in fact a standard rubbing test has shown that it is possible to wear away substantially the whole of the fibrous batt without destroying the thread structure. The rate of wear on a test sample was found to be even over the whole of the sample and due to the close proximity of the fibres of the batt, dirt was found to lie generally on the surface of the fabric thus making cleaning of the fabric very easy.

A floorcovering of the kind described may be used alone and due to its relatively low cost per square yard it provides an economical covering which when it has become worn can be used as an underlay for a traditional woven, tufted or felted floor covering.

#### WHAT WE CLAIM IS:—

1. A floorcovering comprising a layer of stitchbonded fabric incorporating a polymeric material impregnant and a layer of foamed material adhered thereto, the said polymeric material serving at least to increase the wearability of the fabric (as compared to a non-impregnated fabric) and to assist in producing a high bond strength between the foamed material and the stitchbonded fabric.

2. A floorcovering as claimed in claim 1 in which there are interconnected rows of stitching, forming an open mesh, in the fabric.

3. A floorcovering as claimed in claim 1 or 2 in which the impregnant used is polyvinyl acetate, natural or synthetic rubber latex, or any other polymeric resin, having an affinity for the foamed material used in the floorcovering.

4. A floorcovering as claimed in claim 1, 2, or 3 in which the fabric has been impregnated by padding, total immersion or back coating to an extent sufficient to ensure total impregnation of the fabric.

5. A floorcovering as claimed in any one of the preceding claims in which the fabric has been dyed prior to impregnation.

6. A floorcovering as claimed in any one of the preceding claims in which the foamed material is foamed natural or synthetic latex or foamed plastics material.

7. A floorcovering substantially as hereinbefore described.

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